AMENDMENTS TO THE CLAIMS:

Please replace the claims with the claims provided in the listing below wherein status, amendments, additions and cancellations are indicated.

1. (Previously Presented) Microcolumn reactor for carrying out reactions on solid phases and/or biological cells comprising at least a first and a second substrate wafer being engaged to one another in a common plane, whereby at least one longitudinally extending channel is inserted into at least one of said substrate wafers, said channel, in a preselectable section of its length, being captured by two passage openings, which are passed through the opposite substrate wafer, wherein the passage openings are separated from the channel by a partially permeable sieve-like membrane, the membrane having transmission areas so dimensioned that they preselectably prevent micro-beads and/or cells, which are introduced into the channel, from entering into the passage openings, and the channel is provided with at least two further openings outside of the section captured by said passage openings, said at least two further openings being adapted to enable a loading and/or a displacement of the micro-beads and/or cells, provided above the section captured by said preselectable channel section, by applying a fluidic pressure, and further comprising means for temporarily closing at least one of the passage openings and one of the further openings.

2. (Previously Presented) The microcolumn reactor as claimed in claim 1, wherein glass is selected for the first substrate wafer and a silicon wafer for the second substrate wafer, whereby the channel is inserted into the glass plate and the surface of the silicon wafer opposing said glass plate is entirely covered by a coat, into which a micro-structurized perforation is provided at least in the section of the passage openings, said micro-structurized perforation being for forming transmission areas.

3. (Previously Presented) The microcolumn reactor as claimed in claim 1, wherein at least one of a glass plate and a plate made of synthetic material is selected for the first and/or for the second substrate wafer, the channel is inserted into the first substrate wafer and the surface of the second substrate wafer opposing said first substrate wafer is entirely covered by a membrane, into which a micro-structurized perforation is provided at least in the section of the passage openings, said micro-structurized perforation being for forming transmission areas.

4. (Previously Presented) The microcolumn reactor as claimed in claim 3, wherein the membrane is a perforated polymeric foil.

5. (Currently Amended) The microcolumn reactor according to claim [[16]] 2, wherein the first and the second substrate wafers are anodically bonded to one another.

6. (Currently Amended) The microcolumn reactor according to claim [[16]] 2 or 3, wherein the first and the second substrate wafers ~~are attached to one another by an adhesive~~ are connected to one another by adhesives outside of the channel.

7. (Currently Amended) The microcolumn reactor according to claim [[16]] 3, wherein the first and the second substrate wafers are attached to one another by ~~external clamps~~ externally provided clamping means.

8. (Currently Amended) The microcolumn reactor according to claim [[16]] 1, 2, or 3, wherein said ~~first passages~~ passage openings are connected to a second channel [[,]] in the second substrate wafer and the second channel extends to a rim of the substrate~~, with said second channel extending longitudinally at each of both ends thereof to respective opposite exterior surfaces of said second substrate wafer~~.

9. (Currently Amended) The microcolumn reactor, according to ~~claim 16~~ one of claims 1-5 and 7, wherein the channel is defined by ~~there is~~ a plurality of passage

openings, ~~greater than two, of said second passages,~~ and respectively correlated passage openings, which constitute an inlet and an outlet ~~are inlets~~, and passage openings, which define a section of the channel, are arranged relative to one another equidistantly or at different distances ~~and a plurality, greater than two, of first passages, which are outlets, said plurality of first passages being arranged relative to one another one of equidistantly and at different distances along said channel, said plurality of second passages being arranged relative to one another one of equidistantly and at different distances along said channel, and said plurality of first passages and said plurality of second passages being correlatedly arranged relative to one another one of equidistantly and at different distances along said channel~~.

10. (Currently Amended) The microcolumn reactor according to claim 9, wherein said plurality of the correlated passage openings ~~correlatedly arranged first and second passages~~ are alternatively on a common substrate wafer or fluidically connect a plurality of discrete microcolumn reactors, the respective distances between correlated passage openings ~~first and second passages~~, each pair of which together form one inlet and one outlet, being of different length, as determined by requirements of an actual reaction process.

11. (Currently Amended) The microcolumn reactor according to claim [[16]] 1, wherein a plurality of substrate wafers, each having a channel and at least two ~~each of first and second passages~~ passage openings therein, are fluidically interconnected with one another in a manner selected from: in parallel in a single plane, serially in a plurality of planes, and in a matrix, combining both parallel, single plane and series, multi-plane interconnections, and wherein further components are provided at preselectable connection sites. ~~with at least one analytical component selected from the group consisting of: optical detectors, chemical analysis units, calorimeters, and electrochemical detectors, being additionally connected to selected substrate wafers at predetermined connection points.~~

12. (Currently Amended) The microcolumn reactor according to claim [[16]] 1, wherein a plurality of substrate wafers, each having a channel and at least two ~~each of first and second passages~~ passage openings therein, are fluidically interconnected with one another in a manner selected from: in parallel in a single plane, serially in a plurality of planes, and in a matrix, combining both parallel, single plane and series, multi-plane interconnections, and wherein further micro-structurized components are provided and integrated in the entire system~~with at~~

~~least one additional microstructured component being integrated with said substrate wafers~~.

13. (Currently Amended) The microcolumn reactor according to claim [[16]] 2, wherein the passage openings ~~said first passages in said first substrate wafer~~ are positioned perpendicular to an exterior surface of said ~~first~~ second substrate wafer, ~~which contains said first passages, said first passages~~ and each passage opening having an hourglass shape formed by two frusto-pyramidal sections, each with large and small base surfaces, said two frusto-pyramidal sections ~~of each said first passage~~ abutting one another and inverted upon one another at an intersection of their said small base faces, ~~such that an opening at one large base face is in communication with said channel in said substrate wafer, and an opening at said other, opposite large base face is at said exterior surface of said first substrate wafer,~~ said second substrate wafer is an Si(100)-wafer having an etching mask on two opposite faces thereof, a first etching mask on one face of said second substrate wafer having transmission areas at least across said ~~first~~ passage openings, and a second etching mask on an opposite face of said second substrate mask being provided with recesses having openings which correspond to a smallest inside cross section of said ~~first passages~~ passage openings, ~~as measured at said~~

~~abutting intersection of said small base faces of said two frusto-pyramidal shaped sections of said first passages~~.

14. (Previously Presented) The microcolumn reactor according to claim 8, wherein said second substrate wafer is one of a Si-wafer of 100-orientation and 110-orientation, which has a sieve pore membrane mask structure on a side thereof, which, in a vicinity of said second channel further has a window corresponding to a width of said second channel, said window extending up to a rim of said second substrate wafer, and an opposite side of said second substrate wafer is entirely covered by a protective etching resistant coating.

15. (Currently Amended) The microcolumn reactor according to claim [[16]] 1, wherein the membrane is a nano-porous, thin-layer membrane, having pore sizes of 5 to 500 nm.

16. (Cancelled).